IEEE P802.11
Wireless LANs

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| Comment Resolution for Subclause 9.44 |
| Date: 2013-12-05 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Amin Jafarian | Qualcomm Inc. | 5775 Morehouse Dr San Diego, CA 92109 | 1-858-651-9464 | Jafarian@qti.qualcomm.com |
| Alfred Asterjadhi | Qualcomm Inc. |  |  | aasterja@qti.qualcomm.com |

Abstract

This submission proposes resolutions for comments in clause 9.44 of TGah Draft 1.0 with the following CIDs:

1251, 1252, 1355, 1652, 1951, 1952, 1953, 1954, 1984, 2763, 2914, 2915

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGah Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGah Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGah Editor: Editing instructions preceded by “TGah Editor” are instructions to the TGah editor to modify existing material in the TGah draft. As a result of adopting the changes, the TGah editor will execute the instructions rather than copy them to the TGah Draft.***

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| **CID** | **Page.Line** | **Subclause** | **Comment** | **Propose Change** | **Resolution** |
| 1251 | 190.49 | 9.44 | I don't see any significant difference between SF and the reverse direction protocol, except the frames used to map.Rather than see the re-inventing of the wheel, I would much prefer to see re-use and adaptation of existing mechanisms. | Remove SF entirely. Modify the RD protocol so that the RD grant and More PPDU fields can be carried in short MAC frames. | Reject:For short and control response (that are not wrapped up frames) frames there is no HT control field and therefore there is no “more PPDU” bit. This is being signaled with the “more data” indication in SF which is in the PHY preamble and therefore has a longer rangeAlso the SF, can be viewed as several RD protocols SIFS time back to back since each PPDU maybe acknowledged by another PPDU from the other STA and not nessacarly an ACK or BA. |
| 1252 | 191.30 | 9.44.2 | "NOTE-A SF Initiator may include multiple SF exchange sequences," - normative language in a NOTE | "may" -> "can". | Agree with the commenterRevised:TGah editor to make changes shown in 11-14-0315r0 |
| 1355 | 192.30 | 9.44 | It seems Figure 9-89 is not refrenced in the SF clause. | Refer to Fig 9-89 in the SF clause. | Agree with the commenterRevised:TGah editor to make changes shown in 11-14-0315r0 |
| 1652 | 190.63 | 9.44.1 | Some text comparing Speed Frame Exchange versus Reverse Direction Protocol will be useful. | Add text comparing Speed Frame Exchange versus Reverse Direction Protocol to the Overview of Speed Frame Exchange. | Reject:The comment failed to identify a real issue.In response to the commenter:The utility of SF exchange is already described in the discussion part of the subclause and the RD Protocol is in 9.26.  |
| 1951 | 213.19 | 9.44.2 | The figure 9-89 shows the start of the SF using a PS Poll. The description of exchange sequence says "one PPDU...." Which is it? | Be clear and make text comply with the figure. | Reject:The comment failed to identify a real issue.In response to the commenter:A PS-Poll is also considered a PPDU |
| 1952 | 214.01 | 9.44.2 | Fig 9-89 does not seem to have any accompanying text. Should not there be a reference to it in the text? | Add text to reference the Fig 8-89 | Agree with the commenterRevised:TGah editor to make changes shown in 11-14-0315r0 |
| 1953 | 213.01 | 9.44.2 | I am having a little problem understanding why the Speed Frame is that much better than "TXOP with BA". I see that it is two way and it seems to set up a CF period for exchnage between 2 STAs, but how is this better than say TXOP or indeed A-MSDU? | Convince me that SF is a real step forward with significant savings over TXOPor A-MSDUs. | Reject:Speed frame exchange happens inside a TXOP and an A-MSDU can be used on top of that as well. SF is for two way fast frame exchange within a TXOP without needing to backof and performing EDCA, so there is no meaningful comparision between SF and TXOP or A-MSDU.  |
| 1954 | 213.01 | 9.44.2 | I find the 'Rules for SF Exchange" missing some basic description. It uses a PS Poll to clear the air, or does it -no mention of this. It seems as tought eh two STA take turns until one has no more data but it unclear what happens if data packet fails FCS? Sending a series of back to back packets results in a BA but why is this better than an aggregated packet? This section would benefit from a basic description of how it is suposed to work, I have to admit I find it confusing. The figure does not help that much as the text does not seem to realted to it. | Please consider having a clear basic description paragraph that corresponds to the figure but also explains the scheme. | Reject:The comment failed to identify a real issue.In response to the commenter:The Protocol is well defined, It starts with a PPDU (can be a PS-Poll or any other PPDU) with the *long* response indication and the exchange of PPDUs happens until initiator transmits a PPDU with response indication set to anything excep the long response. |
| 1984 | 191.42 | 9.44.2 | "A SF Responder that is an AP, sending an SF response burs ... -- Long Response if the More Data field of its final PPDU in the SF response burst is set to 1."The above description is rather confusion. It is unclear what the meaning of "final PPDU" is. Does it mean that there will be no more PPDU after this PPDU? If that is true, why the Response Indication is set to long response since the eliciting PPDU sets the more data field to zero. | Please clarify. | Agree with the commenter. The sentence is removed.Revised:TGah editor to make changes shown in 11-14-0315r0 |
| 2763 | 194.34 | 9.44.2 | Response Indication field? | Please clarify | The “field” is redundant and it is removed in the provided resolution.Revised:TGah editor to make changes shown in 11-14-0315r0In response to the commenter: |
| 2914 | 191.37 | 9.44.2 | Comparing a paragraph from line 37 and a paragraph from line 42, it is not clear why non-AP STA and AP act differently for a SF Responder. Further clarification is needed. | As mentioned in the Comment. | Agree with the commenterRevised:TGah editor to make changes shown in 11-14-0315r0 |
| 2915 | 191.19 | 9.44.2 | It is not clear how SF Initiator can identify if the SF Responder has something to send and set the Response Indication to Long Response, especially for the case that is not initated by PS-Poll frame. Further clarification is needed. | As mentioned in the Comment. | Reject:The comment failed to identify a real issue.In response to the commenter:This information can be obtained from the more data field of the previous ACKs received from the responding STA. |

* Speed Frame Exchange
* Overview
* Speed frame (SF) exchange allows an S1G AP and an S1G non-AP STA to exchange a sequence of uplink and downlink PPDUs separated by SIFS time. This operation combines both uplink and downlink channel access into a continuous frame exchange sequence between a pair of S1G STAs. S1G STAs that participate in SF exchange use information that is present in the Frame Control field, PLCP Header Signal field and NDP MAC frames to signal an undergoing SF exchange as described in 9.44.2 (Rules for SF exchange). The objective of this operation is to minimize the number of contention-based channel accesses, improve channel efficiency by reducing the number of frame exchanges, and reduce S1G STA power consumption by shortening Awake times. Rules for SF exchange

Throughout this subclause, a Response Indication of Long Response is signaled by setting the TXVECTOR's parameter RESPONSE\_INDICATION to Long Response for non-NDP frames and by setting the Duration Indication field to 1 and the Duration field to 0 for NDP (Modified) ACK.

A Response Indication of No Response is signaled by setting the TXVECTOR's parameter RESPONSE\_INDICATION to No Response for non-NDP frames and by setting the Duration Indication field to 0 and the Duration field to 0 for NDP (Modified) ACK. The reception of NDP BlockAck signals a Response Indication of No Response.

An S1G AP may initiate a SF exchange with a NDP Modified ACK frame that is sent as a response to a received NDP PS-Poll frame. An S1G non-AP STA shall not initiate a SF exchange with a PS-Poll frame unless it is a PS-Poll+SF frame with the More Data field set to 1. The STA shall not initiate the SF exchange with PS-Poll+SF if it does not have BUs for the SF Responder.

An SF exchange sequence comprises the following:

* The transmission of one PPDU that is either an NDP Modified ACK frame or that satisfies the following conditions:
1. contains a Response Indication of Long Response
2. follows the same rule of the initial frame for TXOP as defined in 9.20.2
3. contains a Duration/ID field that sets the NAV

The S1G STA that transmits this PPDU is known as the SF Initiator.

* The transmission of one or more PPDUs (SF response burst) by the S1G STA addressed in the PPDUs transmitted by the SF Initiator, separated by SIFS time. Only the last (or only) PPDU of the SF response burst may contain any MPDU requiring an immediate response. All the other PPDUs in the SF response burst (if there are nay) except the last one shall indicate “No Response” in the response indication field. The S1G STA that transmits the SF response burst is known as the SF Responder.
* The transmission of one PPDU by the SF Initiator containing an immediate response (*the SF Initiator final PPDU*), if so required by the last PPDU of the SF response burst.

NOTE-A SF Initiator can include multiple SF exchange sequences, separated by SIFS time, within a single TXOP.

NOTE-B SF can not be started with a PPDU that can not signal the Response Indication, e.g. NDP PS-Poll. NOTE-C SF can be started with an PS-Poll+SF.

The SF initiator is responsible to ensure that the total duration of the SF exchanges does not exceed the TXOP limit as described in 9.20.2.2 (EDCA TXOPs). The SF responder shall ensure that its PPDU transmission(s) and any expected responses fit entirely within the remaining TXOP or SP duration, as indicated in the Duration/ID field of the latest MPDU transmitted by the SF initiatior.

A SF Responder sending an SF response burst containing an immediate response to an eliciting PPDU that had the More Data field set to 1 shall set the Response Indication to Long Response for each PPDU in the SF response burst.

A SF Responder that, sending an SF response burst containing an immediate response to an eliciting PPDU that had the More Data field set to 0, shall not set the Response Indication of the last PPDU of the SF response burst to Long Response.

A non-AP STA shall remain in the Awake state until the end of the current TXOP when one of the following conditions is met:

* If it is the intended receiver of a frame with More Data field set to 1 that is sent by the AP.
* If it is an SF Initiator of a SF exchange sequence within a single TXOP.

A non-AP STA may transition to the Doze state if it is the intended receiver of a frame with More Data field set to 0 that is sent by the AP.

Figure 9-89 (Example of SF exchange sequence) illustrates an example of SF exchange signaling. STA A initiates the Speed Frame Exchange by setting the response indication to 11 (Long response) in the PS-Poll+SF and in the preamble of two PV0 PPDUs to allow STA B to transmit its BUs. At the end, STA B sends a PPDU with the response indication 10 (Normal ACK) and STA A will terminate the SF Exchange by sending a PPDU with the response indication set to 00 (No response).

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| * Example of SF exchange sequence
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NOTE 1- A SF exchange is subjected to TXOP duration limits for the current AC.

NOTE 2- For error recovery, a STA participating in a SF exchange may transmit the next frame when the medium is idle at TxPIFS slot boundary.